Psychosocial correlates of smoking among Latino Immigrants

A Senior Honors Thesis

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by

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INTRODUCTION

A review of the literature indicates that social interaction plays a central role in Latino health and behavior, including smoking behavior. Gender roles in Latino society appear to change with acculturation, or Latino men and women experience, in some aspects, different mechanisms of acculturation (Bethel and Shenker, 2005). This study aims to identify the different factors associated with smoking among Latino men and women. Once identified, these different perceptions regarding smoking behavior may be used to construct gender-appropriate cessation and prevention materials. This is particularly important among Latinas, where effective preventative efforts may help mitigate the initiation of smoking upon increased acculturation (Bethel and Shenker, 2005).

An exploration of the research regarding the general health of Latinos reveals several interesting behavioral health characteristics of this population. In particular, the importance of social support exhibits itself in such phenomena as the Hispanic Health Paradox and is demonstrated to be an effective mechanism for dealing with various life stressors (Palloni and Morenoff, 2001; Cassel, 1976). With respect to smoking behavior, at all levels of acculturation, the prevalence of smoking among Latino men and women is lower than that of non-Hispanic whites (G. Marin et al., 1989; Perez-Stable et al., 1991). However, smoking behavior among Latinos is gender-specific, and with increased acculturation, the prevalence of Latina smokers increases significantly while male smoking prevalence remains the same (Bethel and Shenker, 2005). Although the existence of this gender specific trend is well supported, the cause of these trends has not been identified.

In this study, it was hypothesized that certain gender-identifying characteristics may be associated with smoking among Latino men and women at varying degrees of acculturation. Additionally, it was hypothesized that social support may play a mitigating role on the effect acculturative stressors, which would in turn be associated with to a lower prevalence of smoking.

BACKGROUND

The Hispanic Health Paradox

This paradox is a description of the unexpectedly good health of the Latino population in the U.S. Though well documented in the literature, there is significant dissent among researchers regarding the nature or existence of this phenomenon, (Markides and Coreil, 1986; Laio et al., 1990; and Sorlie et al, 1994). This paradox has been defined in several manners; for the sake of this study, we will utilize overall mortality rates as a representative measure or outcome of overall health. It seems Latinos in the United States have a lower mortality rate than non-Hispanic whites, despite overall higher poverty, less education, and less health insurance (Markides and Coreil, 1986; Morales et al., 2002).

There are several existing theories regarding the observed low mortality rates despite limited healthcare access. One theory proposes that the mortality rate among Latinos, particularly first-generation immigrants, is mitigated by social selection. Typically, the most able Latinos are the ones that immigrate and work to provide additional income for their families as remittances (Palloni and Morenoff, 2001). Also, there is the 'salmon-bias' theory, which proposes that immigrants prefer to die in their home country, creating an artificially low mortality rate for the same group in the United States (Pablos-Mendez et al., 1994). However, it has been observed that the Hispanic paradox may not be directly attributable to the selection bias of healthy migrant workers or the salmon bias. Both U.S. born Latinos and Latino immigrants have been observed to have lower mortality rates (Abraido-Lanza et al., 1997).

It seems probable that the Hispanic health paradox may be due to health-related behaviors, such as diet and smoking prevalence, among Latinos as a cultural group. Several researchers have found that many of the differences in health behaviors among these two cultural

groups do favor Latinos (Markides and Coreil, 1986; Scribner, 1994; Scribner, 1996). In addition to a tendency toward favorable health behaviors, genetic factors, and greater family support are also suggested to contribute to the Hispanic health paradox (Markides and Coreil, 1986; Scribner, 1994; Scribner, 1996). Following this model, it is not surprising that, as Latinos exhibit behaviors and ideologies that are more similar to mainstream culture in the U.S. than those of their countries of origin, there also tends to be a greater exhibition of negative health behaviors and a decreased exhibition of health-promoting behaviors. It has been observed that, among Hispanics, there is a worsening in overall health with increased integration into American society (Ebin et al., 2003; Singh and Siahpush, 2001). Acculturation, a concept that will be later discussed in more detail, appears to be an important indicator of health for Hispanic Americans (Ebin et al., 2003). Research suggests that how acculturated an individual is to the American culture plays a larger role than where that person was born (Ebin et al., 2003).

The role of social support and culturally specific values of Latinos

Social support and social networks have been shown to have a profound effect on physical, mental, and social health. Social support acts as a psychosocial buffer that reduces an individual's vulnerability to the negative effect of stress on health (Cassel, 1976). There are several theories to explain how social support acts as a buffer against stress. On an individual level, social support may provide an increased sense of control and allow problems to be dealt with in more constructive ways, thus reducing the inherent stress of the situation (Thoits, 1986). Additionally, social support can act as a significant buffer against stressors on health during a major life transition (Rhodes et al., 1994; Hirsch and Dubois, 1992; Walker et al., 1977). Though it has not been established what aspects or qualities of these social support systems cause

enhanced health outcomes, it is well-known that the perception of social support is the key determinant of its effects (Wortman and Lehman, 1985; Peters-Godlen, 1982).

Certain values pertaining to family and social behavior may contribute to the Latino health paradox. In particular, these values appear to create social support systems that play a powerful role in mitigating the effect of stressors and negative health behaviors (Palloni and Morenoff, 2001), particularly due to acculturative stressors such as discrimination (Finch and Vega, 2003). The concept of familism is very important in Latino culture, which means that one's family tends to be especially coherent and nuclear. This strong sense of structure and recognition includes even extended family and often blood-related and non-blood relatives alike (B.V. Marin et al., 1990; Lisansky, 1981, Sabogal et al., 1987, Abraido-Lanza, 1997). Another cultural value includes the concept of collectivism, which is a distinct sense of loyalty and obligation to a social group as opposed to the individual that often encourages positive interpersonal relations (G. Marin and Triandis, 1985; Lisansky, 1981). Given the strong emphasis on the importance of family and friends, we see that an increased degree in perceived social support has a dramatically positive effect on self-reported overall health among Latinos (Finch and Vega, 2003). Social support also appears to be a very significant depressor of poor health as related to acculturative stressors such as discrimination, thus identifying another aspect of its effectiveness as a preventative health mechanism (Finch and Vega, 2003).

Latino smoking behavior

Latinos give special significance to smoking as a social phenomenon. Specifically, Latinos are particularly likely to smoke in social and emotional situations, and it appears that both Latinas and Latinos hold similar attitudes with respect to the significance of smoking in

their own culture (G. Marin et al., 1990a). However, Latinos have several unique attitudes toward smoking when compared to non-Hispanic whites. For example, when compared to non-Hispanic whites, Latinos mitigated the likelihood of symptoms of physical addiction upon quitting, and less acculturated Latino immigrants report a greater frequency of quitting plans (G. Marin et al, 1990a, 1990b). The most significant differences, however, were concerning addiction and the social and familial aspects of smoking. Specifically, Latinos felt smoking was more likely to harm the health of their children than non-Hispanic whites, and they felt more strongly that family relationships would improve upon quitting (G. Marin et al, 1990a, 1990b). These differences suggest that social networks are stronger motivators for Latino smoking behavior than the majority in the United States.

Research consistently indicates that fewer Latinos smoke and do so with less frequency than Non-Hispanic whites (G. Marin et al., 1989; Perez-Stable et al., 1991). Additionally, Latinos prefer to quit cold turkey and almost exclusively use a will power approach; as a cultural group, Latinos tend to mitigate the concept of physiological addiction (Perez-Stable et al., 1991). This preference of a cold-turkey method may also be related to the fact that Latinos as a whole are lighter smokers than non-Hispanic whites, with a substantial portion consuming less than 10 cigarettes a day (Marcus and Crane, 1985). The number of cigarettes smoked is so low that the degree of dependence among smokers in this population has been questioned (Perez-Stable et al., 1991).

Acculturation and smoking behavior

For the purpose of this study, acculturation is defined as "the cultural learning and behavioral adaptation that takes place among individuals exposed to a new culture," which can be reflected in variables such as language use (Padilla, 1980; G. Marin, 1987). As defined, an individual who was born in the U.S. is not necessarily highly acculturated. Successful assimilation into mainstream culture implies complex changes in behavior; some traditional practices and ideologies may be retained, while others may become drastically altered, thus making the mechanism of acculturation of a particular cultural group difficult to define.

The relationship between smoking behavior and acculturation among Latinos has been extensively explored. It has been well demonstrated that increased levels of acculturation among Hispanics are associated with smoking-related attitudes and behaviors that mirror those of whites (G. Marin et al., 1989; Perez-Stable et al., 2001; Haynes et al., 1990). Perhaps as another reflection of this increased integration, there seems to be either a change in or lowering of intensity of key traditional Latino values, (G. Marin et al., 1989). Additionally, as Latinos acculturate, their smoking prevalence and number of cigarettes smoked beings to approach that of the general U.S. population (Haynes et al., 1990).

Gender and smoking behavior

At all levels of acculturation, the prevalence of smoking among Latina women is significantly less than that of Latino men (Haynes et al., 1990; Perez-Stable et al., 2001). Interestingly, not only do Latino men and women exhibit a difference in smoking prevalence, but they respond in distinct ways to increased acculturation with respect to smoking behavior. This phenomenon is well-supported in the literature; a 2005 meta-analysis of the most valid studies

thus far regarding acculturation and Latino smoking behavior demonstrates that changes in smoking prevalence are gender-specific (Bethel and Schenker, 2005). Specifically, there was a positive association of acculturation and smoking among women and no association among men (Bethel and Schenker, 2005). These marked gender differences may imply the need of prevention and cessation efforts and materials for Latinos to be tailored for gender (Perez-Stable et al., 2001).

Gender-identifiers among Latinos

Gender roles have been shown to be strong indicators in substance use behavior among adolescents. Aggressive behaviors have been positively associated with alcohol use among males, and emotional concern and empathy have been negatively associated with use among females (Huselid and Cooper, 1992). The effects of these aggression and nurturing qualities have been generalized to drug use in both genders (Thomas, 1996; Kulis et al., 2002). However, it is noted that differences in gender roles between sexes typically decrease among adolescents as they age, likely due to a decrease in the adoption of perceived stereotypes (McCreary et al., 1998). It is hypothesized that the process of acculturation may cause a renegotiation of said roles among Latino adults. In an adult population, the best-studied association with gender identifying characteristics and drug use is the positive correlation of male alcoholism and aggression (McCreary et al., 1999). Additionally, aggression among both genders is positively associated with drug use (Allen et al., 1997).

The unique behavioral patterns observed among Latino women and men with varying degrees of acculturation suggest that the acculturative process is gender-specific. Though the concepts of ‘machismo’ and ‘marianismo’ as traditional gender roles are most often associated

with Mexicans and Chicanos, the idea that Latino men and women have such distinct social and gender roles is common to Latin America (Baca Zinn, 1982). Latino men and women may perceive societal factors that influence the acculturative process in ways that are defined by their gender roles. These archetypal gender roles in traditional Latino culture may be deconstructed with increased acculturation and suggest an underlying reason for some highly acculturated Latinas to initiate smoking.

There are several theories that attempt to explain this aspect of the acculturative process. First, smoking may be a way for Hispanic women to establish their independence in American society (G. Marin and Triandis, 1985). It may also symbolize the acquisition of greater equality due to employment opportunities for women and thus renegotiated gender roles (G. Marin et al., 1990a, 1990b). Also, the abandonment of Hispanic social pressures, which suppress smoking among women but not men, may explain increased smoking among women (G. Marin et al., 1990a, 1990b). Alternatively, increased smoking prevalence among women may be related to differential exposure to acculturative stressors among women and men. Latinas may be exposed to greater stressors that are associated with an increase in smoking prevalence (Janes, 1990).

A strong correlation between increased acculturation and a renegotiation of gender roles has been observed, specifically among the traditionally gender-defining social behaviors of Mexican women (Kulis et al., 2002; Kulis et al., 2003). The role of gender identity, acculturation, and drug use was explored among Mexican-American adolescents, and an explanation was suggested for increased smoking in changes of gender-identifying characteristics. Male and female gender roles are defined by differing degrees of several masculine and feminine typed behaviors and personality traits (McCreary et al., 1990). In an evaluation of four categories that describe gender-defining characteristics (measures of assertive-

masculinity, aggressive-masculinity, affective femininity, and submissive femininity), Chicanas demonstrated significantly higher 'aggressive-masculine' traits coupled with lesser but still significantly lower 'submissive-feminine' traits with increased acculturation. Increases in aggressive-masculine behavioral traits are closely related to increased drug use (defined as cigarettes, alcohol, and marijuana) among Latina and non-Latina women, while submissive femininity plays an inhibitory, but less significant role in drug use. Gender-identity rather than gender alone appears to be a better predictor of drug use behaviors and norms, making a renegotiation of gender roles and behaviors with increased acculturation a possible explanation for the distinct smoking patterns of Latino men and women.

Summary and Motivation for Current Study

In summary, there are strong indications that social support, stress, and gender roles are important factors in Latino smoking behavior. The Hispanic Health Paradox seems to exist due to the buffering effect of social support networks on deleterious health behaviors, highlighting the significance of social support among Latinos. However, the role of social support among Latino smokers is a complex; social networks are not only a significant buffer for general and acculturative stress, but social situations are antecedents of smoking among Latinos. Acculturation creates change in Latino smoking behavior, typically to mirror that of non-Hispanic whites. It appears that the cultural context of smoking and the acculturative process with respect to smoking is gender-specific. The nature of this discrepancy may be due to different perceptions of stress or a renegotiation of gender roles with a resulting change in gender-identifying characteristics, both of which have been linked to smoking behavior.

Specific Aims

This study examined two primary aims (Specific Aims 1 and 2) and several secondary aims. The primary aims focused on examining associations between smoking and social support, perceived stress, acculturative stress, perceived social support, and gender identity. The secondary aims involved assessing the relations between the measures of acculturation, stress, social support, socioeconomic status, and gender identity.

> **Specific Aim 1:** To determine if there is an association between Latino smoking behavior and: 1) general stress, 2) acculturative stress, and 3) perceived social support.
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> **Specific Aim 2:** To determine if gender-identifying behaviors are related to smoking behavior among adult Latinos. Specifically, this study aims to determine whether measures of four gender-identifying behaviors (aggressive masculinity, assertive masculinity, affective femininity, and submissive femininity) are associated with smoking status.

Secondary Aims

As a secondary objective, associations between acculturation, perceived acculturative stress, perceived smoking prevalence and acceptability, perceived social support, gender, and gender-identifying characteristics were explored to gain some insights into Latino and immigrant social theory. It should be noted that this study was not suited to make any decisive conclusions regarding these associations; however, observations and reasonable hypotheses can be discussed. The following questions were explored:

1. Is there a statistically significant difference between measures of masculine and feminine-identifying behaviors among adult Latino men and women?

2. Is there a correlation between gender identity indices and acculturation within an adult Latino population? Is this correlation moderate or strong for women only, men only, or both genders together?

3. Is there a correlation between acculturation and: 1) acculturative stress, and 2) social support among men, women, or both genders together?

4. Is perceived social support negatively correlated with perceived acculturative stress among adult Latinos?

5. Is there an association between Latino smoking behavior and the perceived prevalence of smoking among Latino men and women? Is there an association between gender or acculturation and perceived smoking prevalence?

6. Is there an association between the perceived acceptability of smoking in social situations and: 1) gender or 2) smoking status?

METHODS

Participant Selection

Participants in this study were selected by convenience sampling. Participants were recruited from thee locations in the Greater Columbus area, including English as a Second Language (ESL) classrooms at Columbus State Community College's Language Institute. The classes are held at varying times and locations throughout the Greater Columbus area. The participants that attended these classes were typically young to middle-aged adults reflected a variety of origins and years of residency within the United States. The survey was administered only to students in the classes. As a significant number of the Latino students may have known each other, participants were asked to fill out the written survey with minimal discussion (except for questions directed at the researcher or teacher to clarify a question) to avoid response bias.

Participants were also selected from the Columbus Physician's Free Clinic and Ohio State University's Clinica Latina. The Columbus Physician's Free Clinic is permanently located in the Columbus Health Department Building at 240 Parsons Avenue and is held on Monday evenings. Ohio State's Clinica Latina is located in the Rardin Family Practice Center on 2231 North High Street and is held every other Tuesday evening. The Clinica Latina is targeted specifically at Latinos without health insurance, and approximately 20% of the Physician's Free Clinic's patients are Latino. Both Latino men and women were recruited from the waiting area of the clinics.

Survey instruments

The survey instrument was designed to be a self-administered questionnaire, though it could be administered by an interviewer to participants who were illiterate. The survey was available in both English and Spanish. All items on the survey had been translated, back translated, and compared by a bilingual reviewer for consistency in meaning across languages. Excluding the injunctive norm, subjective norm, and perceived prevalence estimates, the reliability of each scale had been validated in both languages. The reliability of the subjective norm scale had been validated in English only, and the reliability of the injunctive norm and prevalence estimate scales used in this study have not been validated in either language. The specific components are as follows:

1. **Demographics.** The questions for this section were drawn from a general demographics survey that is utilized in English and Spanish (CASAA, 1997). Questions include age, sex, nationality, marital status, education level, habitation (with friends, spouse, homeless, etc), and income.
2. **Smoking Behavior.** The questions from this section were drawn from the Spanish and English versions of the CDC's 2004 BRFSS Questionnaire (CDC, 2004). Questions in this section were used to classify subjects as smokers, and among smokers, to measure smoking frequency, attempts to quit, and usage of tobacco products other than cigarettes (cigars, chewing tobacco, etc.). Additionally, this section included questions on smoking behavior within the house by asking the respondent to describe the smoking rules within his/her home by choosing between statements such as "Smoking is not allowed anywhere in the house" and "smoking is allowed in some places or at some times."

3. **Injunctive Smoking Norm**. The injunctive norm is a measure of whether the respondent thinks smoking is acceptable in certain social situations. The scale consisted of questions such as "how acceptable is it if someone smokes in a bar" or "how acceptable is it if someone smokes in the presence of children." Responses are arranged on a 5 point scale from 'very acceptable' to 'very unacceptable.' The 5 question scale used in this study is an abbreviation of an 8 question scale with high reliability (∀=0.81) used in a smoking cessation study (van den Putte et al., 2005). The reliability of the abbreviated scale in this study has not been tested.

   Scoring: A score of 1 to 5 is assigned to each response for the 5 questions, and the scores are summed to yield a total of 1 to 25. A higher value indicates a lower perceived acceptability of smoking in various situations.

4. **Subjective Smoking Norm**. A single-question was used to ask how much smokers think people who are important to them would approve or disapprove if they quit smoking within the next 3 months (van den Putte et al., 2005). Responses were arranged on a 5 point scale from 'strongly approve' to 'strongly disapprove.'

   Scoring: The responses for the subjective norm are grouped into two values, representing 'approve,' and 'disapprove.' Responses of 'strongly approve' and 'somewhat approve' were grouped as 'approve;' responses of 'neutral,' 'somewhat disapprove', and 'strongly disapprove' were grouped as 'disapprove.'

5. **Perceived Smoking Prevalence Estimates**. These questions were designed to determine whether the respondent has an accurate perception of smoking prevalence among Latinos and Latinas in the United States and Latin America. The respondent is asked to estimate

how many Hispanic men and women smoke in the United States and in Latin America by choosing from a 5 point scale ranging from 'almost none' to 'almost all.'

Scoring: The responses for each prevalence estimate are grouped in to two values, representing 'many' and 'few.' Responses of 'almost none' and 'some' were grouped as 'few;' responses of 'half,' 'most,' and 'almost all' were grouped as 'many.'

6. **PRQ2000**. The Personal Resource Questionnaire (2000 version) was used to measure perceived social support (Weinert, 2003). It consists of 15 statements such as "people let me know that I do well at work" and "there is someone I feel close to who makes me feel secure." The respondent was asked to rate agreement with each statement on a 7-point Likert scale ranging from 'strongly disagree' to 'strongly agree.'

   Scoring: A score of 1 to 7 is assigned to each response, and the scores are summed to yield a total of 15 to 105. A higher score indicates a higher level of perceived social support.

7. **Acculturation Scale.** This 5-item scale was an abbreviation of the original measure of acculturation in a Hispanic population (Marin, 1987). The reliability of the abbreviated scale has been reported to be very high (∀=0.90) and utilizes language as a measure of acculturation. The respondents were asked questions such as "what language(s) do you usually speak at home?" Responses were on a 5 point scale ranging from 'only Spanish' to 'only English.'

   Scoring: A score of 1 to 5 is assigned to each of the 5 questions, and the scores are summed to yield a total of 5 to 25. A higher score indicates a higher level of acculturation.

8. **Acculturative Stress Scale.** This 24-item scale is designed to measure levels of acculturative stress in American immigrants (Mena et al. 1987). The Spanish translation was validated in a later study (Roche, 2005). Respondent were presented with statements such as 'I don't feel at home in the United States' or 'people think I am shy when I really just have trouble speaking English' and asked to choose between responses ranging from 'not at all true' to 'very true' on a 4 point scale.

   Scoring: A score of 1 to 4 is assigned to each of the 16 responses, and the scores are summed to yield a total of 16 to 64. A higher score indicates higher levels of acculturative stress.

9. **Gender Identity Scale**. This scale was developed to measure four aspects of gender identity (aggressive masculinity, assertive masculinity, affective femininity, and submissive femininity) in a primarily Hispanic audience (Kulis et al., 2003). The scale included 12 behavioral statements such as 'I am sure of my talents and abilities' and 'I can tell someone is feeling sad or depressed,' and the respondent is asked to choose from responses ranging from 'never' to 'always' on a 5 point scale.

   Scoring: A score of 1 to 5 is assigned to each of the 12 responses. The scores for each subscale are determined by summing the scores of items 1, 5, and 9, (positive masculinity), 2, 6, and 10 (positive femininity), 4, 8, and 12 (negative masculinity), and 3, 7, and 11 (negative femininity) for four totals of 3 to 15. A higher score is a higher indicator of the respective gender identifying characteristic.

Data analysis

Descriptive statistics were computed, followed by a comparison of descriptive means among men, women, smokers, and non-smokers. The scale scores were computed for men, women, and all participants according to the respective scoring protocols. Because many of the variables analyzed were ordinal and the number of participants was limited, non-parametric tests and correlations were utilized in the analyses.

A moderate correlation is defined as one with a correlation coefficient between 0.3 and 0.49, and a strong correlation is defined as one with a correlation coefficient of greater than or equal to 0.5 as recommended by J. Cohen (Cohen 1988). Weak correlations were not considered in this study as several were present that were not statistically significant ($p \geq 0.05$), despite a relatively large sample size.

Specific Aim 1: To determine if there is an association between current smoking behavior and: 1) acculturative stress, and 2) perceived social support.

The data for the first specific aim of the study were analyzed using the non-parametric Wilcoxon Rank Sum. The grouping variable was smoking status (current smoking versus current non-smoking) and the continuous measures were scores on the scales measuring acculturative stress and social support. These tests were performed using data from the group as a whole and also separately for men and women.

Specific Aim 2: To determine if there is an association between gender-identifying indices and smoking behavior among adult Latinos.

The second specific aim of the study was explored similarly. Measures of the four gender-identifying characteristics were tested for their association with smoking behavior using a

Wilcoxon Rank Sum. The grouping variable was smoking status, and the continuous variables were scores of the four gender-identifying indices. These tests were performed for both sexes together and separately.

Secondary Aim 1: Is there a statistically significant difference between measures of masculine and feminine- identifying behaviors among adult Latino men and women?

Measures of the four gender-identifying characteristics were tested for their association with gender using a Wilcoxon Rank Sum. The grouping variable was gender, and the continuous variables were scores of the four gender-identifying indices.

Secondary Aim 2: Is there a correlation between gender identity indices and acculturation within an adult Latino population? Is there a moderate or strong correlation for women only, men only, or both genders together?

Measures of the four gender-identifying characteristics were tested for their correlation with the measure of acculturation using a bivariate Spearman correlation test. These tests were performed for both sexes together and separately.

Secondary Aim 3: Is there a moderate or strong correlation between acculturation and: 1) acculturative stress, and 2) social support among men, women, or both genders together?

Measures of acculturative stress and social support were tested for their correlation with the measure of acculturation using a bivariate Spearman correlation test. These tests were performed for both sexes together and separately.

Secondary Aim 4 Is perceived social support negatively correlated with perceived acculturative stress among adult Latinos?

The measure of perceived social support was tested for its correlation with the measure of acculturative stress using a bivariate Spearman correlation test. These tests were performed for both sexes together and separately.

Secondary Aim 5: Is there an association between Latino smoking behavior and the perceived prevalence of smoking among Latino men and women? Is there an association between gender and perceived smoking prevalence?

Measures of perceived prevalence of smoking among men and women in the United States and Latin America were tested for their association with smoking and gender using Pearson chi square tests. Men and women were tested separately and together, as were smokers and non-smokers.

Secondary Aim 6 Is there an association between the perceived acceptability of smoking in social situations and: 1) gender or 2) smoking status?

The measure of the injunctive norm was tested for its association with gender and smoking status using two Wilcoxon Rank Sums. In the first test, the grouping variable was smoking status, and the continuous variable was the injunctive norm measure. This test was performed for both sexes together and separately. In the second test, the grouping variable was gender, and the continuous variable was the injunctive norm measure.

RESULTS

The study had a total of 178 participants, 46.3% of whom were male and 53.7% were female. Demographic and smoking behavior statistics are summarized in tables 1 and 2 in the appendix. The demographic characteristics of smokers and non-smokers within each gender were compared and shown to be similar, making a transformation of the data to control for associations between smoking status and demographics unnecessary. The sample was relatively young, with 54.1% of the participants between the ages of 18 and 30 years and 80% between the ages of 20 and 40. Additionally, the sample appeared to be heavily weighted toward low acculturation scores, with the median score for both genders being 7.0 on a scale of 5 to 25. With regard to ethnicity, 58.8% of participants had a father of Mexican descent, 58.2% had a mother of Mexican descent, and 40.1% of participants were of other Hispanic descent. No single country of origin other than Mexico was highly represented in the sample population. More than 70% of participants reported earning less than $20,000 per year, and more than 40% make less than $10,000 per year. Additionally, the sample reported a high education level, with 43.0% of men and 49.4% of women having at least a high school education. All questions used in the study analyses had high response rates (>90%)

A summary of the smoking prevalence of the sample is presented in table 2. Among men who participated in this study, 34.1% were considered former smokers, 59.8 were considered never smokers, 29.4% were considered current smokers. Among women, 16.1% were considered former smokers, 78.5 were considered never smokers, and 17.4% were considered current smokers. Former other tobacco use was 11.4% among men and 5.4% among women. Current other tobacco use occurred among less than 5% of both genders. Finally, 92.5% and 80.0% of men and women never allow smoking in their household, respectively.

With regard to the study aims, no tests related to specific aim 1 met or approached statistical significance as summarized in table 4. The mean acculturative stress scores of male smokers and non-smokers were 43.8 and 42.1, respectively. The mean acculturative stress scores of female smokers and non-smokers were 36.9 and 38.9, also respectively. The mean perceived social support scores of smokers and non-smokers for both genders were 81.8 and 84.6, respectively.

The results of specific aim 2 are summarized in table 5. A weak positive association was found between negative masculinity and smoking status ($p=0.083$) for both genders together, and a negative association was found between measures of positive femininity and smoking status ($p=0.043$) among women only. The mean scores of aggressive masculine behavioral traits for smokers and non-smokers were 6.5 (±2.2) and 5.8 (±2.3), respectively. Among women, the mean scores of affective feminine behavioral traits among smokers and non-smokers were 10.6 (±2.6) and 12.1 (±2.3), also respectively.

For secondary aim 1, there was an association between gender and measures of: 1) aggressive masculinity ($p=0.030$) and 2) submissive femininity ($p=0.011$). The results of secondary aim 1 were summarized in table 6. The mean scores of aggressive masculine behavioral traits among men and women were 6.5 (±2.3) and 5.5 (±1.9), respectively. The mean scores of submissive feminine behavioral traits among men and women were 8.4 (±2.4) and 7.4 (±2.3), also respectively.

For secondary aim 2, there was a moderate positive correlation between measures of assertive masculine behavioral traits and acculturation ($r=0.33$, $p=0.000$). When each gender was analyzed separately, there were moderate positive correlations among men between acculturation and: 1) assertive masculine behavioral traits ($r=0.43$, $p=0.000$), and 2) aggressive masculine

behavioral traits (r=0.33, p=0.004). The results of secondary aim 2 are summarized in table 7. Without regard to statistical significance, all correlations between acculturation and: 1) aggressive masculinity, 2) assertive masculinity, and 3) affective femininity were positive. All correlations between acculturation and submissive femininity were negative.

For secondary aim 3, there was a moderate positive correlation among men between acculturative stress and acculturation (r=-0.40, p=0.001). The results of the test for secondary aim 3 are summarized in table 8. Without regard to statistical significance, all correlations between acculturative stress and acculturation were negative, and all correlations between social support and acculturation were positive.

For secondary aim 4, no moderate or strong correlations were found. Without regard to statistical significance, all correlations between acculturative stress and social support were negative. The results of secondary aim 4 are summarized in table 9.

The results of secondary aim 5 are summarized in table 10. A negative association (p=0.028) was found smoking status and the perceived smoking prevalence of Latinas in the United States (p=0.028). When this association was examined separately for men and women, it was found to be significant among men (p=0.007) and not statistically significant among women (p=0.781). With a possible range of scores of 1 to 2 representing opinions varying from 'few' to 'most,' the mean prevalence estimates of smoking among Latinas in the U.S. is 1.12 (±0.45) and 1.46 (±0.50) for smokers and non-smokers of both genders, respectively. The mean estimated smoking prevalence of Latinas in the U.S. is 1.17 (±0.38) and 1.49 (±0.50) among male smokers and non-smokers, also respectively.

For secondary aim 6, there was a negative association (p=0.43) between the perceived acceptability of smoking in public and smoking status. When both genders were analyzed

separately, only a weak association negative association was found among men (p=0.65). The results of secondary aim 6 are summarized in table 11. The mean scores of the injunctive norm among smokers and non-smokers were 19.1 (±6.1) and 21.0 (±4.9), respectively. The mean scores of the injunctive norm among male smokers and non-smokers were 18.3 (±6.6) and 21.0 (±4.7), also respectively.

DISCUSSION

Based on the results of this study, there appeared to be no association between Latino smoking behavior and: 1) general stress, 2) acculturative stress, or 3) perceived social support. If the lack of association is not due to the small sample size of smokers, this finding supports the work of Gerardo Marin that suggests Hispanics primarily smoke in social situations and stress relief is a secondary motivator for smoking (Marin G. Et al., 1990a).

For specific aim 2, there appeared to be a weak positive association ($p=0.083$) between aggressive behavioral traits and smoking status. Among women, there was a negative association ($p=0.043$) between affective feminine behavioral traits and smoking status. In the literature, aggressive behaviors, measurable by the negative masculinity index have been positively associated with alcohol use among males, and emotional concern and empathy, measurable by the positive femininity index, have been negatively associated with use among females (Huselid and Cooper, 1992). Despite the small sample size of this study, the preliminary results are promising and suggest that the literature relevant to measures of gender-identifying behaviors and substance abuse may be applicable to smoking behavior in at least a Hispanic population. A larger study is recommended that includes both Hispanics and non-Hispanic whites.

For secondary aim 1, there was an association between gender and measures of: 1) negative masculinity ($p=0.030$) and 2) negative femininity ($p=0.011$). This aim was designed to expand upon the work of Stephen Kulis with adolescent Hispanics, which found adolescent measures of gender identifying behaviors in a large sample to be gender-specific (Kulis et al, 2002). The results of the current study suggests that at least negative measures of gender identifying behaviors are gender-specific in an adult Hispanic population and should be analyzed separately. This information may prove useful in the establishment of appropriate guidelines for

scoring and comparison of these four behavioral measures among adult populations, particularly if these measures are to be explored for more widespread use in smoking behavior research.

Secondary aim 2 sought to assess the correlation between gender identity indices and acculturation within an adult Latino population. A moderate positive correlation was observed between positive masculinity and acculturation when both genders were analyzed together ($r=0.33$). When each gender was analyzed separately, there was not a correlation among women, but there were two moderate positive correlations among men between acculturation and: 1) positive masculinity ($r=0.43$), and 2) negative masculinity ($r=0.33$). The increase in measures of assertiveness and aggression among men with increased acculturation may simply be a result of greater feelings of familiarity with American culture. Following traditional gender roles, particularly in Mexican culture, these increases in positive and negative masculine behavior among men may be related to a greater perceived ability to be financially successful in the United States and provide for other family members (Baca Zinn, 1982). As men improve their English language ability, they are likely to feel less timid or uncomfortable in public situations. Interestingly, a weak negative correlation for negative femininity (submissiveness) was observed for both genders with increased acculturation, and the other three behavioral measures were positively correlated with acculturation among both genders. Once again, these trends toward a decrease in submissiveness and an increase in both positive and negative facets of non-submissive behavior are conceptually appropriate for a process involving language acquisition and cultural assimilation. A possible way to determine whether these changes of behavior are unique to immigration and not a return to behaviors exhibited prior to immigration would be to compare a sample of highly acculturated Hispanic immigrants to Hispanics in Latin America.

The results of secondary aim 3 support the proposed explanation for the findings in secondary aim 2. For secondary aim 3, there was a moderate negative correlation among men between acculturative stress and acculturation (r=-0.40). Conceptually, is reasonable to believe that individuals would experience less stress over time as they become accustomed to a new culture. It appears Hispanic men who are highly assimilated in the United States experience less acculturation-related stress, perhaps because of an increased ability to find regular employment and to provide for other family members. As demonstrated by the significantly lower employment rates of women and absence of a correlation between acculturation and acculturative stress**,** the culturally-motivated pressure to obtain work may be less prevalent or absent.

For secondary aim 4, no moderate or strong correlations were found between perceived social support and acculturative stress. This may be a result of the relatively small sample size for this study, or it is a valid indication that the two measures are not related among adult Hispanics. Measures of perceived social support were high in general, supporting the notion of Hispanic familism and the hypothesis that the Hispanic health paradox is due to high levels of social support, regardless of discriminative stress (Palloni and Morenoff, 2001, Finch and Vega, 2003, B.V. Marin et al., 1990; Lisansky, 1981, Sabogal et al., 1987, Abraido-Lanza, 1997). It should also be noted that more than 90% of participants lived with family for friends, mitigating the negative effect immigration may have on perceived social support. Alternatively, measures of acculturative stress may be too specific to be impacted by perceived social support. The acculturative stress scale is designed to specifically measure the respondent's perception of negative aspects of immigration, such as homesickness, feelings of isolation, and perceived

discrimination (Mena et al, 1987). A broader measure of stress, such as the perceived stress scale, is a more likely candidate for correlation with perceived social support (Cohen et al, 1983).

Secondary aim 5 examined a question that has yet to be reported on in the smoking literature. Though social situations have been demonstrated to be a strong antecedent of smoking among Hispanics, the accuracy with which Hispanics estimate the smoking prevalence of their peers has not been studied, nor has the effect of gender or one's own smoking status on this estimate (Marin G et al., 1990). For secondary aim 5, there was a negative association between smoking status and the perceived smoking prevalence of Latinas in the United States ($p=0.028$). When this association was examined separately for men and women, it was found to be significant among men ($p=0.007$) and not statistically significant among women ($p=0.781$). These data indicate that male smokers think significantly less Hispanic women smoke in the United States than their male non-smoking counterparts; male smokers' prevalence estimate of female smokers in the United States is also more accurate than that of male non-smokers. This may be a result of the increased social exposure of male smokers to female smokers; male smokers may observe that few Latinas smoke, even in culturally acceptable situations.

The results of some of the scale measures across the entire sample population also proved to be informative. The acculturation scores were very low in general; not surprisingly, measures of acculturative stress tended to be relatively high. In general, the injunctive norm scores were very high, indicating lowly acculturated Hispanics perceive smoking to be a largely unacceptable behavior in public. Additionally, Hispanic men and women had an inaccurate perception of the smoking prevalence of other Hispanic men and women in the United States in almost all cases. Hispanics almost universally overestimated the smoking prevalence of their peers, except for Hispanic male smokers when estimating the prevalence of Hispanic female smokers in the

United States. This overestimation was exaggerated when participants were asked to estimate the smoking prevalence of their own gender. Nonetheless, both genders perceived the smoking prevalence among women to be less than that of men, suggesting Hispanic Americans are poor at estimating smoking prevalence but effective at comparing relative smoking prevalence between sexes.

There were several limitations to this study. One of the major limitations to the study was that the sample was heavily weighted toward low acculturation scores, which negatively impacted any possible associations between acculturation and other measures. Given a wider range of acculturation scores or more time to explore ways to transform the data, the analyses that involved acculturation could be improved. Additionally, because many of the participants were recruited from language program that required high literacy rates, it is possible that the education level of the sample population does not reflect that of the general population. The sample size was small and was shown to impact several analyses where associations were present when both genders were analyzed together and absent when analyzed separately. This was largely attributable to limited time and resources for participant recruitment. In particular, the number of female smokers included in the study was very small, which certainly affected analyses of female smokers versus non-smokers. Smoking status could not be verified with a biochemical marker such as carbon monoxide or serum cotinine, which did not allow for the consideration of misclassification or underreport of smoking status in the study analyses.

In conclusion, several important trends were identified that could have an important impact on Hispanic smoking prevention and studies of Hispanic health behavior and acculturation. Measures of aggressive and empathic behaviors show promise as indicators of smoking status, suggesting previous research of these behaviors in relation to other substance use

could be generalized to smoking behavior. Measures of positive and negative masculine behaviors, in addition to acculturative stress, are associated with acculturation among men. This implies the influence of cultural pressures on men to obtain employment and provide for other family members; additionally, these trends give insight into the complex and gender-specific acculturative process and its impact on the health of Hispanic Americans. Finally, Hispanic Americans tend to overestimate the smoking prevalence of other Hispanics. For unknown reasons, the only accurate estimate of smoking prevalence was that of male smokers with respect to female Hispanics in the United States. It appears appropriate to include statistics and statements demonstrating few Hispanics in the United States smoker in future smoking prevention and cessation efforts. Further research is recommended on many of these trends; in particular, a prospective study of recently immigrated Hispanics may give additional insight into the effects of acculturation on many of the behaviors and measures studied.

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APPENDIX

Table 1. Frequency Distribution Percentages for Demographic Characteristics of the Sample

	Males (n=82)	Females (n=95)	Total (n=178)
Gender (n=177)	46.3	53.7	
Age (n=174)			
18-30	54.7	50.0	54.1
30-40	27.8	41.5	35.1
40+	13.9	8.5	10.9
Father Ethnicity (n=177)			
Mexican	61.0	56.4	58.8
African American	0.6	1.1	1.1
Non-Hispanic White	0	0	0
Other Hispanic	38.4	42.5	40.1
Mother Ethnicity (n=177)			
Mexican	59.8	56.4	58.2
African American	0.6	0	0.6
Non-Hispanic White	0.6	1.1	1.1
Other Hispanic	39.0	42.5	40.1
Marital Status (n=177)			
Married/living with partner	52.4	72.7	63.5
Divorced/widowed/separated	3.7	2.1	2.8
Never married	43.9	25.3	33.7
Employment Status (n=178)			
Full Time	50.0	21.1	34.8
Part Time	39.0	20.0	28.7
Homemaker	0	36.8	19.7
Unemployed	11.0	22.1	16.7
Current Residence (n=178)			
Alone	9.8	6.3	7.9
With Family	45.1	76.8	61.9
With Friends	45.1	16.8	30.3
Education Level (n=171)			
< High School Education	57.0	50.6	53.8
> HS diploma	43.0	49.4	46.2
Gross Annual Income (n=147)			
0-$10,000	41.0	41.2	41.5
$10,000-$20,000	32.1	33.8	32.7
$20,000-$30,000	19.2	16.2	17.7
>$30,000	7.7	8.8	8.1

Table 2. Smoking Prevalence and Household Smoking Rules of the Sample

	Males (n=82)	**Females (n=95)**	**Total (n=177)**
Smoking Status			
Never	59.8	78.5	69.9
Former	34.1	16.1	24.4
Current	29.4	17.4	23.0
Total Tobacco			
Never	81.5	88.2	85.1
Former	11.1	5.4	8.0
Current	2.4	3.2	2.9
Household Smoking (n=171)			
Never Permitted	92.5	80.0	86.0
Sometimes Permitted	7.5	20.0	14.0

Table 3. Acculturation Scores of the Sample

	Men	**Women**	**Total**
Acculturation			
Mean	8.23	7.97	8.08
Std. Dev.	3.49	3.35	3.49

Table 4. Comparison of Smoking Behavior to Acculturative Stress and Social Support

	Men		**Women**		**Total**	
	Smokers	**Non-Smokers**	**Smokers**	**Non-Smokers**	**Smokers**	**Non-Smokers**
Acculturative Stress						
Mean	43.8	42.1	36.9	38.9	41.2	40.1
Median	44.5	43.5	32.5	41.0	42.0	41.0
Std Dev	5.8	8.2	10.6	8.2	8.5	8.3
Perceived Social Support						
Mean	80.7	83.4	83.5	86.0	81.8	84.6
Median	86.5	87.0	89.0	89.5	87.0	87.5
Std Dev	15.6	14.7	17.7	18.7	16.2	17.4

***p<0.1**
****p<0.05**
*****P<0.01**

Table 5. Comparison of Gender Identifying Behavioral Traits and Smoking Behavior

	Men		**Women**		**Total**	
	Smokers	**Non-Smokers**	**Smokers**	**Non-Smokers**	**Smokers**	**Non-Smokers**
Assertive Masculinity						
Mean	11.3	11.2	11.5	11.5	11.4	11.4
Median	11.0	11.0	12.0	12.0	12.0	11.0
Std Dev	2.3	2.4	2.8	2.4	2.5	2.4
Aggressive Masculinity						
Mean	7.0	6.3	5.9	5.5	6.5*	5.8*
Median	7.0	6.0	5.5	5.0	6.0*	6.0*
Std Dev	2.6	2.6	1.1	2.0	2.2	2.3
Affective Femininity						
Mean	11.6	11.1	10.6**	12.1**	11.2	11.7
Median	12.0	11.0	11.0	12.0	11.0	12.0
Std Dev	2.2	2.7	2.6	2.3	2.3	2.5
Submissive Femininity						
Mean	8.8	8.3	6.5	7.7	7.9	7.9
Median	9.0	8.0	7.0	7.0	8.0	8.0
Std Dev	1.5	2.6	1.5	2.4	1.9	2.5

***p<0.1**
****p<0.05**
*****P<0.01**

Table 6. Comparison of Gender-Identifying Behavioral Traits and Gender

	Men	Women	Total
Assertive Masculinity			11.4
Mean	11.3	11.5	12.0
Median	11.0	12.0	2.4
Std Dev	2.4	2.5	
Aggressive Masculinity			
Mean	6.5**	5.5**	6.0
Median	6.0	5.0	6.0
Std Dev	2.3	1.9	2.3
Affective Femininity			
Mean	11.2	11.8	11.5
Median	11.0	12.0	12.0
Std Dev	2.6	2.4	2.5
Submissive Femininity			
Mean	8.4**	7.4**	7.9
Median	9.0	7.0	8.0
Std Dev	2.4	2.3	2.4

***p<0.1**
****p<0.05**
*****P<0.01**

Table 7. Comparison of Gender-Identifying Behavioral Traits and Acculturation among Hispanic Men and Women

Acculturation Vs.	Men	Women	Total
Assertive Masculinity			
Spearman Coefficient	.439*	.257	0.330*
P-Value	.000	.016	0.000
Aggressive Masculinity			
Spearman Coefficient	.331*	.104	.178
P-Value	.004	.335	.023
Affective Femininity			
Spearman Coefficient	.269	.114	.227
P-Value	.020	.289	.004
Submissive Femininity			
Spearman Coefficient	-.139	-.163	-.135
P-Value	.236	.129	.086

***moderate correlation >=0.30**
****strong correlation >=0.50**

Table 8. Comparison of Acculturation, Acculturative Stress, and Social Support

Acculturation Vs.	**Men**	**Women**	**Total**
Acculturative Stress			
Spearman Coefficient	-.403**	-.029	-.182
P-Value	.001	.791	.024
Social Support			
Spearman Coefficient	.231	.099	.155
P-Value	.051	.374	.053

***moderate correlation >=0.30**
****strong correlation >=0.50**

Table 9. Comparison of Social Support and Acculturative Stress.

Acculturative Stress Vs.	**Men**	**Women**	**Total**
Social Support			
Spearman Coefficient	-.184	-.214	-.209
P-Value	.143	.059	.012

***moderate correlation >=0.30**
****strong correlation >=0.50**

Table 10. Comparison of Perceived Smoking Prevalence and Smoking Status among Hispanic Men and Women.

Perceived Smoking Prevalence of:	Men			Women			Total		
	Smokers	Non-Smokers	Total	Smokers	Non-Smokers	Total	Smokers	Non-Smokers	Total
Men in United States									
Mean	1.83	1.75	1.76	1.42	1.45	1.44	1.78	1.74	1.74
Std Dev	.38	.44	.43	.51	.50	.50	.41	.44	.44
Men in Latin America									
Mean	1.87	1.83	1.85	1.64	1.50	1.52	1.87	1.83	1.83
Std Dev	.38	.37	.36	.50	.50	.50	.34	.38	.37
Women in United States									
Mean	1.17***	1.49***	1.38	1.71	1.75	1.73	1.12**	1.46**	1.41
Std Dev	.38	.50	.49	.47	.44	.44	.45	.50	.49
Women in Latin America									
Mean	1.62	1.50	1.54	1.86	1.63	1.73	1.63	1.50	1.53
Std Dev	.49	.50	.50	.36	.49	.44	.49	.50	.50

Scores range from 1 to 2, with 1 representing 'some' and 2 representing 'most.'

***p<0.1**
****p<0.05**
*****P<0.01**

Table 11. Comparison of the Injunctive Norm and Smoking Status among Hispanic Men and Women

	Men			Women			Total		
	Smokers	Non-Smokers	Total	Smokers	Non-Smokers	Total	Smokers	Non-Smokers	Total
Injunctive Norm									
Mean	18.3*	21.0*	20.0	20.6	21.0	20.1	19.1**	21.0**	20.5
Median	21.5	22.0	22.0	22.0	23.0	22.0	22.0	22.5	22.0
Std Dev	6.6	4.7	5.7	4.8	5.1	5.0	6.1	4.9	5.3

***p<0.1**
****p<0.05**
*****P<0.01**